



# COST PLUS INCENTIVE FEE (CPIF)

## PRICING ARRANGEMENT

[Contract #]  
B-1B (D2)

Briefing For: [ ]  
10 Jan 01

Presented by [PC  
O phonel]



# OVERVIEW

- **Purpose**
- **Description of Services**
- **Goals of the Incentives**
- **Range of Incentive Effectiveness**
- **Incentive Fee Values**
- **Cost Incentive**
- **Quality Incentive**
- **Fee Overview**
- **Conclusion**



# PURPOSE

**As requested by [ ],  
To explain CPIF pricing arrangement using  
multiple incentives -- Cost and Quality**



# Description of Services

- Software update to Block D Program (D2)
- Estimated Target Price \$30.1M
- Effective date 16 Sep 00
- Period of performance thru Jul 02 (22 months)



# Goals of the Incentive

- Control cost
- Exceed the quality standard of Block D software.
  - Compare D2 Flight Test Problem Reports (TPRs) to Block D
- Of the total fee negotiated 70% is allocated for cost incentive and 30% is allocated for quality incentive



# Range of Incentive Effectiveness (Cost and Quality)



	Optimistic	Target	Pessimistic
Cost	24.8M	27.6M	30.3M
Fee	<u>3.5M</u>	<u>2.5M</u>	<u>1.3M</u>
Price	28.3M	30.1M	31.6M



# Incentive Fee Values

**Negotiated Values:**       $\text{Fee}_{\text{C}(70\%)} \quad \text{Fee}_{\text{Q}(30\%)}$

Target Fee       $2.531\text{M} = 1.772\text{M} + .$   
759M

Min Fee       $1.279\text{M} = .895\text{M} + .384\text{M}$

Max Fee       $3.509\text{M} = 2.456\text{M} + 1.053\text{M}$



# Cost Incentive

## (Share Formula)

**Formula used to develop the Contractor's share of Under( $S_{cu}$ ) and Over( $S_{co}$ ) Targets**

$$S_{cu} = \frac{\text{Targ Fee} - \text{Optimistic Fee}}{\text{Targ Cost} - \text{Optimistic Cost}} \times (-100) = 36\%$$

**Share ratio (Under Target) 64/36**

$$S_{co} = \frac{\text{Targ Fee} - \text{Pessimistic Fee}}{\text{Targ Cost} - \text{Pessimistic Cost}} \times (-100) = 46\%$$

**Share ratio (Over Target) 54/46**

**The share ratios do not apply to the total fee pool, only to the 70% set aside for cost incentive.**

**Therefore, the share ratio applies to 70% of the under or over run.**



# Quality Incentive

## (Development of $Q_t$ )

**Target Q ( $Q_t$ ) is the sum of all applicable Test Problem Reports (TPRs) times the severity/weight factors found during Block D flight test.**

$$0 \text{ (TPRs)} \times .1 = 0.00$$

$$13 \text{ (TPRs)} \times .07 = .91$$

$$17 \text{ (TPRs)} \times .05 = .85$$

$$47 \text{ (TPRs)} \times .03 = 1.41$$

$$0 \text{ (TPRs)} \times .01 = 0.00$$

$$\text{Block D (6 programs)} = 3.17$$

Review of TPRs resulted in 1.585 vs 3.17 for this effort.



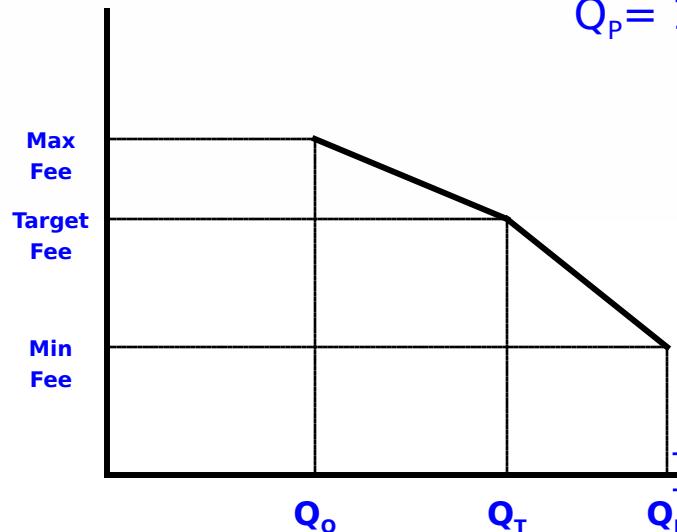
# QUALITY INCENTIVE



A 20% increase or decrease from  $Q_t$  will result in min or max fee  $Q_t = 1.585 = .759M$

$$Q_o = 1.268 = 1.053M$$

$$Q_p = 1.902 = .384M$$



If  $Q < Q_t$ , Incentive Fee=

$$\text{Targ Fee} + \{(Q_t - Q) / Q_t \times 20\% \} \times (\text{Max Fee} - \text{Targ Fee}) \}$$

If  $Q > Q_t$ , Incentive Fee=

$$\text{Targ Fee} - \{(Q - Q_t) / Q_t \times 20\% \} \times (\text{Targ Fee} - \text{Min Fee}) \}$$

Summary: - \$1183/Quality Unit Change

+\$ 927/Quality Unit Change



# Fee Overview

- Target Fee is 9.2% of Target Cost
  - Target Fee related to cost is 70% of 9.2% or 6.4%
  - Target Fee related to quality is 30% of 9.2% or 2.8%
- Max Fee is 12.7% of Target Cost
  - Max Fee related to cost is 70% of 12.7% or 8.9%
  - Max Fee related to quality is 30% of 12.7% or 3.8%
- Min Fee is 4.6% of Target Cost
  - Min Fee related to cost is 70% of 4.6% or 3.2%
  - Min Fee related to quality is 30% of 4.6% or 1.4%



# Conclusion



CPIF with multiple incentives provides an opportunity to motivate the Contractor to improve quality as well as control cost.



# What If: Optimistic Cost (Calculating Cost Incentive)



Allowable Cost Incurred (under run) - 24.625M

- Target Cost = 27.361M
- Actual Cost = 24.625M
- Under run = 2.736M
- Contractor's Share Under Target =  
 $70\% \times 2.736M \times 35.75\% = .684M$
- Cost Incentive =  
Target Fee + Shared Fee =  $1.772M + .684M = 2.456M$



# What If: Pessimistic Cost (Calculating Cost Incentive)



Allowable Cost Incurred (over run) - 30.097M

- Target Cost = 27.361M
- Actual Cost = 30.097M
- Over run = 2.736M
- Contractor's Share Over Target =  
 $70\% \times 2.736M \times 45.75\% = .877M$
- Cost Incentive =  
Target Fee - Shared Fee =  $1.772M - .877M = .895M$



# What If: Optimistic Quality (Calculating Quality Incentive)



Target Quality = 1.585

D2 Q value = 1.268

**If  $Q < Q_t$  , then quality incentive fee =**

**Target Fee + { $((Q_t - Q) / (Q_t \times 20\%)) \times (\text{Max fee} - \text{Target fee})$ }**  
=

**.759M + { $((1.585_{Q_t} - 1.268_Q) / (1.585_{Q_t} \times 20\%)) \times (1.05M - .759M)$ }** = 1.05M



# What If: Pessimistic Quality (Calculating Quality Incentive)



Target Quality = 1.585

D2 Q value = 1.902

**If  $Q > Q_t$  , then quality incentive fee =**

**Target Fee - {  $((Q-Q_t)/(Q_t \times 20\%)) \times (\text{Target fee} - \text{Min fee})$  }**  
=

**.759M - {  $((1.902_Q - 1.585_{Qt}) / (1.585_{Qt} \times 20\%)) \times (.759M - .383M)$  } = .383M**